

WHAT IS CLAIMED IS:

1. A blade member for an airplane, which constitutes at least a portion of a rotor blade of the airplane, said blade member comprising:

an outer skin area surrounded by a first outer skin, a second outer skin, a leading edge and a trailing edge each having a predetermined wall thickness; and

at least one reinforcing area extending in a span direction within the outer skin area and connected to the first outer skin and the second outer skin;

wherein said outer skin area and said reinforcing area are integrally formed by wire electrical discharge-machining.

2. The blade member for an airplane according to claim 1, wherein at least one of wall thickness of said first outer skin and said second outer skin changes in a cord direction.

3. The blade member for an airplane according to claim 1, wherein a distance between outer surfaces of said first outer skin and said second outer skin is gradually decreasing toward the trailing edge to become approximately zero at the trailing edge.

4. The blade member for an airplane according to claim 2, wherein a distance between outer surfaces of said first outer skin and said second outer skin is gradually decreasing toward the trailing edge to become approximately zero at the trailing edge.

5. The blade member for an airplane according to claim 2, wherein the wall thickness of the first outer skin includes a central portion that is thicker relative to the leading edge and trailing edge.

6. The blade member for an airplane according to claim 1, wherein two reinforcing areas are provided within the outer skin area for connecting the first outer skin to the second outer skin, said two reinforcing areas being spaced a predetermined distance relative to each other.

7. The blade member for an airplane according to claim 1, wherein the blade member is constructed of an aluminum alloy.

8. The blade member for an airplane according to claim 1, wherein the first outer skin is curved upwardly.

9. The blade member for an airplane according to claim 1, wherein said second outer skin is substantially flat.

10. The blade member for an airplane according to claim 1, wherein two reinforcing areas are provided within the outer skin area for connecting the first outer skin to the second outer skin, said two reinforcing areas being spaced a predetermined distance relative to each other and said first outer skin being curved upwardly and includes a thickened portion extending between the two reinforcing areas.

11. A method of forming a blade member for an airplane comprising the following steps:

using wire electrical discharge-machining for forming an outer skin area surrounded by a first outer skin, a second outer skin, a leading edge and a trailing edge each having a predetermined wall thickness;

using wire electrical discharge-machining for forming at least one reinforcing area extending in a span direction within the outer skin area and connected to the first outer skin and the second outer skin; and

integrally forming said outer skin area and said reinforcing area by wire electrical discharge-machining.

12. The method according to claim 11, and further including the step of forming at least one wall thickness of said first outer skin and said second outer skin to change in a cord direction.

13. The method according to claim 11, and further including the step of forming a distance between outer surfaces of said first outer skin and said second outer skin that is gradually decreasing toward the trailing edge to become approximately zero at the trailing edge.

14. The method according to claim 12, and further including the step of forming a distance between outer surfaces of said first outer skin and said second outer skin is gradually decreasing toward the trailing edge to become approximately zero at the trailing edge.

15. The method according to claim 12, and further including the step of forming the wall thickness of the first outer skin to include a central portion that is thicker relative to the leading edge and trailing edge.

16. The method according to claim 11, and further including the step of forming two reinforcing areas within the outer skin area for connecting the first outer skin to the second outer skin, said two reinforcing areas being spaced a predetermined distance relative to each other.

17. The method according to claim 11, and further including the step of forming the blade member of an aluminum alloy.

18. The method according to claim 11, and further including the step of forming the first outer skin to be curved upwardly.

19. The method according to claim 11, and further including the step of forming said second outer skin to be substantially flat.

20. The method according to claim 11, and further including the step of forming two reinforcing areas within the outer skin area for connecting the first outer skin to the second outer skin, said two reinforcing areas being spaced a predetermined distance relative to each other and said first outer skin being curved upwardly and includes a thickened portion extending between the two reinforcing areas.